that where we found it; remarking only, that we have seen the several forceps exhibited by Dr. Davis to the Society of Arts, &c. shewing his progressive improvements of the instrument; and we have too high an opinion both of his talents and character to think that he has occasion to resort to plagiarism, or that he would wish to usurp any merit to which another has a just claim.—EDITORS.

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13. VIII.

An Explanation of Dr. DAVIS's Craniotomy Forceps.

(With a Plate.)

FIG. 1.—The SINGLE CURVED CRANIOTOMY FORCEPS.

a.—The external blade and handle.

b c.—A strait line drawn between the extreme points at the ends respectively of the external blade and its handle, and subtending the curve of the instrument. This line measures thirteen inches, and gives the greatest length of the forceps

d e.—A line drawn at right angles at *d*, from the subtending line *b c*, to the outside of the external blade, measuring 1$\frac{7}{8}$ inch, shewing the extreme curve of the instrument at this part. N.B. The line *d e*, as represented in the above engraving, measures two inches; but this deception arises from the instrument being seen a little in perspective for the convenience of shewing its grasping surfaces.

f.—The dotted lines from the angle at *f*, are intended to direct the reader's attention to the grasping part of the external blade. This part of the external blade is hollowed out like a spoon; from the bottom of which, project seventeen sharp and angular teeth. The points of the teeth are under the level of the brim, so as to enable the operator to introduce this blade at pleasure without the risk of injuring the mother.

g h.—A strait line drawn between the extreme points of the internal blade and its handle. This line measures 12$\frac{3}{4}$ inches.

i k.—A line drawn at right angles at *i* from the line *g h*, to shew the curve at this part of the instrument. The dimensions of curves are usually expressed, by stating those of the circles of which they are segments; but as in this instance the curve is considerably greater at the blade than at the shank part of the instrument, and scarcely the same at any two points, such precision could not have been conveniently attained. The line *i e*, including the thickness of the instrument at *k*, measures one inch. The thickness of the instrument at this part, is $\frac{1}{4}$ $\frac{1}{16}$ of an inch. At two inches nearer the handle, it is full $\frac{1}{3}$ of an inch.

l m.—A line drawn at right angles at *l* from the line *g h*, to shew the greatest degree of curve of the internal blade. This line measures an inch and $\frac{1}{12}$.

n.—The dotted lines from the angle at *n*, are intended to direct attention to the perforations in the convex surface of the grasping part of the internal blade. These perforations are also seventeen in number, and are so arranged as to receive very accurately the corresponding teeth of the opposite blade. The convexity of the internal blade corresponds with great precision to the concavity of its opposite. Hence it must have the effect upon the instrument, being firmly adjusted at the lock, of pressing the intermediate skull and scalp of the fœtus into the concavity, and upon the teeth of the external blade. Thus armed with seventeen transfixing points, which are forced to penetrate into the scalp and cranium of the fœtal head, it is evident that the craniotomy forceps cannot readily slip.

o.—A brass nut, projecting at right angles from the metallic surface of the handle of the internal blade, intended to enter into a corresponding perforation in the opposite handle. The use of this contrivance, for which Dr. Davis is indebted to the maker, Mr. Botschan, is to admit of greater play at the joint; and at the same time to insure the accurate adjustment of the grasping surfaces. This nut is about $\frac{3}{4}$ of an inch long, and about $\frac{5}{16}$ of an inch in diameter.

p.—The joint of the instrument; being the same with the joint of the common midwifery forceps.

FIG. 2.—The CRANIOTOMY FORCEPS of the second form, or the DOUBLE CURVED CRANIOTOMY FORCEPS.

In cases of great confinement of the pelvis, it will sometimes happen, that the frontal and parietal bones may be removed in fragments of greater or less magnitude, without however bringing down the remainder of the head so as to make it engage in the brim of the pelvis, the occipital part of it remaining unmoved, and hitching over the pubes. By the removal of the anterior part of the skull and scalp, all purchase accessible to the single curved forceps, is lost; inasmuch as that instrument could not be reversed in the application of its curve, without causing with its shanks, much and dangerous pressure upon the perinæum. For the relief of such melancholy cases, Dr. Davis has adapted another form of his instrument, of which we have given a nearly perpendicular view sketch in *Fig.* 2.

The whole of the anterior part of the fœtal skull being removed by the single curved forceps, the external blade (i. e. the blade with the teeth in its concavity) is to be introduced immediately behind the pubis over the occipital part of the fœtal head, with its convex surface to the pubis. The internal or grasping surface will consequently be applied to the outside of the child's head. The internal or antagonizing part of the instrument must be introduced, so that the convex or grasping surface shall embrace the corresponding part of the child's skull on the inside. In consequence of the double curve here adopted, the purchase sought for will be easily obtained without the necessity of laying any material stress upon the perinæum or os coccygis; the shanks of both blades of the instrument being diverted at the curve from the axis of the brim of the pelvis to that of the lower part of the vagina.

a b.—This dotted line gives the length of the external blade of the double curved forceps, and measures thirteen inches.

c d.—This dotted line gives the distance of the shank of the external blade at the curve; *c* the thickness of the shank, inclusive from the strait line *a b.* It measures one inch and a half.

e f.—This dotted line gives the distance of the shank of the internal blade at the curve *e,* from the strait line *h i.* the thickness of the shank inclusive, and measures two inches.

g.—The perforation in the handle of the external blade to receive the brass nut, as described in *Fig.* 1. of the opposite handle. N.B. This contrivance is intended to be common to both forms of the instrument.

Fig. 3.—This figure is given to convey an idea of the dimensions of the grasping surface of the external blade.

a b.—The dotted line *a b,* being one inch and $\frac{1}{12}$ in length, measures the greatest breadth of this surface across its concavity; the line being understood to subtend its concavity.

c d.—The line thus marked, expresses the production of the instrument beyond its concavity in the direction of its length, and measures a quarter of an inch.
The object of this contrivance is to remove any pendulous part of the os uteri out of the reach of the grasp of the instrument.

e d.—This line is a measure of the length of the concavity and subtends it. The length of the subtending line is $3\frac{8}{4}$ inches.
The teeth projecting from the deepest part of the concavity, are a quarter of an inch long. Those in the shallower parts of the spoon, are progressively shorter as they approach the brim; it being necessary for all, for the reason which has been already stated to be under the actual level of the brim.

Fig. 4.—This figure is given to represent the convex surface of the internal blade.

a b.—A strait line, which measures 1 inch, and gives the greatest breadth of this blade.

c d.—A curved line drawn from the commencement of the convexity, where the shank begins to expand into blade, to its termination at the top of the blade. This line is supposed to be a curve, following a curve of the grasping part of the instrument, and measures $3\frac{3}{4}$ inches.
The perforations on the convex surface, which are very well represented in the engraving, are intended to receive the teeth of the opposite blade. The vacant spaces between the perforations are made rough, after the manner of a rasp, in order to prevent the slipping of this blade along the polished interior of the fœtal skull.

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